

BELLCOMM, INC.

955 L'ENFANT PLAZA NORTH, S.W. WASHINGTON, D. C. 20024

SUBJECT: Review of Experiment Implementation Plan for Experiment M132, Neurological Experiment - EEG - Case 610

DATE: December 16, 1968

FROM: M. S. Feldman

N79-73011

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MEMORANDUM FOR FILE

Experiment Implementation Plan for experiment M132, Neurological Experiment - EEG, was prepared at the request of the Apollo Applications Program (ML) and will be presented to the MSFEB at its January meeting.



The experiment will obtain information on the effects of prolonged space flight on levels of attention and sleep states by analysis of electroencephlogram (EEG), electro-oculogram (EOG), and electromyogram (EMG) recordings. The experiment hardware consists of cap assemblies containing electrodes, microphone, blood pressure transducer, and signal preamplifiers; a signal conditioning assembly; a tape recorder assembly containing four seven-channel recorders; and a power distribution and signal terminal assembly.

The integration of this experiment as defined in the EIP presents some location and time line problems. The EIP calls for the experiment to be launched in the MDA on AAP-2 and operated in the workshop sleep station on AAP-3A. Data is to be taken on each of two astronauts in 16 specified sleep periods during the 56-day mission. Each data taking period is to be ten hours long; two hours preceding the sleep period plus the total eight-hour sleep period. Since the cable attached to the sensor cap assembly is only four feet long, it is necessary that the subject astronaut spend the entire ten-hour period in the sleep station area. There are no other activities planned for the sleep station area so that the two hours per data session preceding the sleep period cannot be considered non-interference time as stated on page 2 - 5 of the EIP, but must be scheduled and therefore charged to this experiment.

The requirement for a data session at the workshop sleep station during the first night of the AAP-3A mission cannot be satisfied as the workshop activation sequence will not be completed at this time.

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(NASA-CR-105233) REVIEW OF EXPERIMENT IMPLEMENTATION PLAN FOR EXPERIMENT M132, NEUROLOGICAL EXPERIMENT EEG, CASE 610 (Bellcomm, Inc.) 3 p

FF No. 602(A)

(ACCESSION) [REDACTED] (FHRU)

(PAGES)

(CODE)

02-105233
(NASA CR OR TMX OR AD NUMBER)

(CATEGORY)

AVAIL

RESEARCH

The time line for AAP-3A has not yet been formulated. Some constraints on the time line are known, such as the requirement to have one astronaut in the CM at all times. This constraint may lead to using the CM as the primary sleep station for the mission. If this is done, it would be advisable to reconfigure this experiment for CM operation instead of workshop operation.

Section VI - Integration Approach - neglects the requirement for the return of the tape recorder assembly. Provisions for the return of this assembly must be provided in the CM. Also, if the sensor cap assemblies must be individually fitted to the astronauts, these will have to be launched in the AAP-3A CM instead of the AAP-2 MDA or both prime and backup crew sensor cap assemblies must be launched in the AAP-2 MDA.

The launch assignment of this experiment to the MDA of AAP-2 will further complicate the problem on AAP-2, where more experiments are assigned to the MDA than can be carried.



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1021-MSF-ep

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